



## *Uirassubrillia beckeri* gen. n., sp. n. (Diptera: Chironomidae, Orthoclaadiinae) from northeastern Brazil

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### Abstract

*Uirassubrillia beckeri* gen. n., sp. n. is described and illustrated based on male and female imagines from Bahia State in Brazil. The new genus is placed in the *Brillia*-group as the adults have a strongly setose body and setose wing membrane, RM is long and oblique, and the eye has a long, parallel-sided dorsomedian extension. The male hypopygium has a characteristic digitiform superior volsella and a bifurcate gonostylus. The female has three seminal capsules, two large and a third, smaller one.

**Key words:** *Brillia*-group, new genus, new species, Serra Bonita, Bahia, Mata Atlântica, Neotropical Region

### Introduction

The *Brillia*-group *sensu* Sæther and Wang (1992), is composed of eight genera, *Austrobrillia* Freeman, 1961; *Brillia* Kieffer, 1913; *Eurycnemus* van der Wulp, 1874; *Euryhapsis* Oliver, 1981; *Irisobrillia* Oliver, 1985; *Neobrillia* Kawai, 1991 (= *Pseudobrillia* Niitsuma, 1991); *Tokyobrillia* Kobayashi *et al.* Sasa, 1991; and *Xylotopus* Oliver, 1982. Later the genus *Elpiscladius* Harrison *et al.* Cranston, 2007 has been described and the genus *Plhudsonia* Sæther, 1982 has been included in the group (Cranston 2000; Harrison & Cranston 2007). The *Brillia*-group has the last decades been considered to represent an early, ‘primitive’, branch of the Orthoclaadiinae. The genus *Tokyobrillia* has been recorded from Baltic amber, while *Brillia* has been found in late Eocene Rovno amber from Ukraine (Wichard *et al.* 2009; Zelentsov *et al.* 2012). However, within Orthoclaadiinae robust estimates of the phylogeny based on morphological characters are constrained by extensive homoplasy and characters that may provide unambiguous evidence of relationships have thus been difficult to recognize. Based on molecular data Cranston *et al.* (2012) retrieved the subfamily Orthoclaadiinae with the exception of the genus *Prospillocerus* Kieffer, 1923 which groups with the subfamily Prodiamesinae. The previously postulated tribes, Metriocnemini, Orthoclaadiini and Coryneurini were recovered and a *Brillia*-group and a *Stictocladius*-group which combined form the sister group of the remaining Orthoclaadiinae were placed basally. However, Cranston *et al.* (2012) refrain from formally naming a *Brillia*-group and a *Stictocladius*-group until the morphology is re-examined and sampling increased.

Only two genera in the *Brillia*-group are so far recorded from the Neotropical region (Ashe & O'Connor 2012). The monotypic genus *Irisobrillia* Oliver with *I. longicosta* Oliver, 1985 has been found in Brazil, Costa Rica, Nicaragua, Saint Vincent and Venezuela (Oliver 1985; Spies & Reiss 1996; Andersen & Mendes 2004). Cranston (2000) described *Austrobrillia chilensis* Cranston from Chile and *A. valereissia* Cranston from Ecuador based on pupae only. The genus *Austrobrillia* Freeman was described by Freeman (1961) based on *A. longipes* Freeman, 1961 from Tasmania.

Edwards (1931) described *Spaniotoma* (*Orthocladus*) *eurycnemoides* Edwards based on a female from Lago Nahuel Huapi in Argentina. The species is large, pale yellow, with conspicuous black ornamentation on thorax,

abdomen and legs. Sæther (1979) figured the female genitalia and transferred the species to *Psectrocladius* Kieffer based on the presence of large pulvilli, lack of acrostichals and the shape of the genitalia. However, the female has three seminal capsules and was re-evaluated by Sæther & Wang (1992) and shown to be a member of the *Brillia*-group probably within the genus *Eurycnemus* van der Wulp.

Based on the male and female of a new species from Bahia State in Brazil we describe a new genus, *Uirassubrillia*, and place it in the *Brillia*-group as the adults have a strongly setose body, the eye has a well developed parallel-sided dorsomedial extension, the wing membrane is setose, and RM is long and oblique. The male hypopygium has a characteristic digitiform superior volsella and a bifurcate gonostylus. The female has three seminal capsules, two large and a third, smaller one.

## Methods and terminology

The material was mounted on slides in Euparal following the procedures outlined by Sæther (1969). The general terminology follows Sæther (1977, 1980). The measurements are given as ranges.

Most type specimens are deposited in the Museu de Zoologia da Universidade de São Paulo (MZUSP), São Paulo, Brazil; some paratypes are deposited in Museu de Zoologia da Universidade Federal da Bahia (MZUFBA), Salvador, Brazil and in the Department of Natural History, University Museum of Bergen (ZMBN), Bergen, Norway.

## *Uirassubrillia* gen. n.

**Type species.** *Uirassubrillia beckeri* sp. n.

**Etymology.** From ‘*Uirassu*’, the name of the nature reserve where the species was collected, using the suffix ‘*brillia*’, indicating that the genus belongs in the *Brillia*-group. Gender of genus: feminine.

**Diagnostic characters.** The male imagines can be separated from all other genera in the *Brillia*-group based on the combination of temporal setae multiserial and restricted to inner and outer verticals; anteprenotals divided into dorsal and lateral clusters of setae; wing extensively setose, SC bare, anal lobe weakly developed;  $LR_1 > 1.00$ , hind tibia with comb composed of few, thin setae; tergite IX with two clusters of strong setae, sternapodeme inverted V-shaped with distinct oral projections, transverse sternapodeme short, inferior volsella (distomedial lobe) composed of a cluster of setae on low protuberance, gonostylus bifurcate, lacking true megaseta. The female imagines can be separated from all other genera in the *Brillia*-group based on the combination of temporal setae multiserial and restricted to inner and outer verticals; pedicel with few ventral setae; wing extensively setose, SC bare, anal lobe weakly developed;  $LR_1 > 1.00$ ; fore tibiae without spur; hind tibia with comb composed of few, thin setae; a third thin-walled seminal capsule present; seminal capsules smooth; seminal ducts nearly straight, ending in common opening, with distinct glands; dorsomesal lobe slender, line-like; ventrolateral lobe subquadrangular, covering most of the vagina.

**Generic diagnosis. Male.** Medium sized, wing length 1.5–1.7 mm.

**Head.** Antenna with 13 flagellomeres, groove beginning on flagellomere 2; sensilla chaetica on flagellomeres 2–3 and 13; fully plumed with setae reaching apex of ultimate flagellomere. Antennal ratio 1.00–1.20. Eye bare with few microtrichia between ommatids along inner margin; with well developed parallel-sided dorsomedial extension. Temporal setae multiserial, restricted to inner and outer verticals, with inner verticals clumped near coronal suture. Palp long, slender; third palpomere with few scattered sensilla clavata subapically.

**Thorax.** Anteprenotum well developed with dorsal and lateral setae; lobes separated by narrow notch. Acrostichals lacking; dorsocentrals strong, beginning close to anteprenotum, anterior irregularly bi- to triserial, posterior biserial; humerals lacking; prealars strong, few, irregularly biserial, not extended anteriorly; supraalars present. Scutellars strong, uniserial with few scattered anterior setae.

**Wing.** Membrane with extensive setation, with coarse punctuation (visible at 250 times magnification). Anal lobe weak. Costa strongly extended.  $R_{2+3}$  running equally distance from  $R_1$  and  $R_{4+5}$ , ending closer to  $R_1$ .  $R_{4+5}$  ending distal to  $M_{3+4}$ ; RM long, oblique;  $Cu_1$  curved to slightly sinuous; FCu distal to RM; all veins except Sc and  $R_{2+3}$  with setae. Squama with few setae.

*Legs.* Pseudospurs and sensilla chaetica absent. Hind tibial comb with few (6), thin setae. Spurs of mid- and hind leg with strong lateral denticles. Pulvilli present, but weak. Claws with pointed tip.

*Abdomen.* Tergites II–VIII with antero-median cluster of setae. Sternites I–III bare, sternites IV–VIII with few scattered setae.

*Hypopygium.* Tergite IX with two clusters of strong setae; anal point absent. Sternapodeme inverted V-shaped with distinct oral projections, transverse sternapodeme short, straight. Virga absent. Gonocoxite parallel-sided and elongated; superior volsella well developed, elongate and narrow; inferior volsella (distomedial lobe) composed of a cluster of setae on low protuberance. Gonostylus bifurcate, subapical lobe bare, shorter than apical lobe; apical lobe without megaseta, but with strong basal and apical setae.

**Female.** Medium sized, wing length 1.5–1.7 mm.

*Head.* Antenna with 5 flagellomeres; all flagellomeres with long, simple sensilla chaetica; fifth flagellomere with few, long, apical to subapical setae; pedicel with few, strong, ventral setae. Antennal ratio 0.33–0.36. Eye bare, with well developed parallel-sided dorsomedial extension. Temporal setae multiserial, restricted to inner and outer verticals. Palp long, slender; third palpomere with few scattered sensilla clavata subapically.

*Thorax.* Anteprenotum well developed with dorsal, median and lateral setae; lobes separated by narrow notch. Acrostichals lacking; dorsocentrals strong beginning close to anteprenotum, anterior irregularly triserial, posterior biserial; humerals lacking; prealars strong, few, biserial, not extended anteriorly; supraalars present. Scutellars strong, uniserial with few scattered anterior setae.

*Wing.* Membrane with extensive setation, with coarse punctuation (visible at 250 times magnification). Anal lobe weak. Costa strongly extended.  $R_{2+3}$  running equally distant from  $R_1$  and  $R_{4+5}$ , ending closer to  $R_{4+5}$ .  $R_{4+5}$  ending distal to  $M_{3+4}$ ; RM long, oblique;  $Cu_1$  curved to slightly sinuous; FCu distal to RM; all veins except Sc and  $R_{2+3}$  with setae. Squama with few setae.

*Legs.* Pseudospurs and sensilla chaetica absent. Spur of fore tibia absent. Hind tibial comb with few (6), thin setae. Pulvilli present, but weak. Claws with pointed tip.

*Abdomen.* Tergites II–VIII with antero-median cluster of setae. Sternites I–III bare, sternites IV–VIII with few scattered setae.

*Genitalia.* Gonocoxite well developed, with strong setae. Coxosternapodeme connected with main branch of dorsomesal lobe. Tergite IX divided, with two well delimited areas of setae. Cercus well developed. Gonapophysis VIII divided into a dorsomesal lobe that encircles the anterior part of the vagina, and well developed, subquadrangular ventrolateral lobe that covers most of the posterior part of the vagina. Apodeme lobe rounded, located under the ventrolateral lobe. Three seminal capsules present, the median is smaller and paler than the lateral ones which are rounded, smooth, with distinct neck region. Seminal ducts straight, with distinct glands, ending in common opening. Labia without microtrichia.

## Systematics

*Uirassubrillia* **gen. n.** evidently belongs to the *Brillia*-group based on the adults having a strongly setose body, the eye with dorsomedian extension, setose wing membrane, and RM long and oblique. The male hypopygium has a characteristic digitiform superior volsella and a bifurcate gonostylus. The female has three seminal capsules, two large and a third, smaller one.

According to Sæther & Wang (1992) the *Brillia*-group can be divided into two major groups, one with a single gonostylus composed of *Irisobrillia*, *Pseudobrillia* and *Tokyobrillia*, and a second group with bifurcate gonostylus composed of the remaining genera. *Uirassubrillia* **gen. n.** has a bifurcate gonostylus and will thus group with *Austrobrillia*, *Brillia*, *Elpiscladius*, *Eurycnemus*, *Euryhopsis*, *Pludsonia* and *Xylotopus*.

In the key to the males of the Holarctic region (Cranston *et al.* 1989) *Uirassubrillia* **gen. n.** will key to *Brillia* if the lack of sensilla chaetica on first hind tarsomere is disregarded. However, based on the adults *Uirassubrillia* **gen. n.** seems to be more similar to *Euryhopsis* than to any of the other genera in the *Brillia*-group. Both genera have a setose wing membrane and scutum is only slightly to moderately extended above anteprenotum. In the male the sternapodeme is inverted V-shaped and the gonostylus is split in basal one-third with the apical lobe bearing strong apical to subapical setae and the females of both genera have antennae with five flagellomeres and three seminal capsules. The two genera differ as *Euryhopsis* has a broad anteprenotal notch, wing with rounded anal

lobe, a setose SC, RM and basal part of M without setae, and  $LR_1$  is about 0.75. The male of *Euryhapsis* differs as the anteromedial area of the sternapodeme is triangular or rectangular, the subapical lobe of the gonostylus is longer than the apical lobe and the apical lobe has distinctly lamellate apical and subapical setae; the female differs as the fore tibia is bearing a spur. However, a proper evaluation of the systematic position of *Uirassubrillia* **gen. n.** will have to wait until the immatures are discovered.

### Key to genera of the *Brillia*-group; male imagines

1. Gonostylus simple ..... 2
- Gonostylus bifurcate ..... 4
2. Gonostylus without macroseta or other strong setae, subcosta bare. Japan, China ..... *Neobrillia* Kawai
- Gonostylus with long, apical macroseta and 2–3 strong preapical setae, subcosta with setae. .... 3
3. Fore tibia without spur, hind tibial comb present, wing not cuneiform, megaseta about half as long as gonostylus. Japan, China, Tanzania. .... *Tokyobrillia* Kobayashi *et* Sasa
- Fore tibia with spur, hind tibial comb absent, wing cuneiform, megaseta about one-fourth as long as gonostylus. Neotropical region. .... *Irisobrillia* Oliver
4. Wing membrane bare ..... 5
- Wing membrane setose. .... 6
5. With narrowly triangular anal point inserted subapically, with needle-like, pointed apex projecting beyond apex of tergite IX. Australia, Chile, Ecuador ..... *Austrobrillia* Freeman
- True anal point absent, tergite IX with low, rounded hump with dense microtrichia and numerous setae. Nearctic and Palaearctic regions ..... *Plhudsonia* Sæther
6. Scutum extending well above antepronotum; hind tibial comb absent ..... 7
- Scutum moderately or not extending above antepronotum; hind tibial comb present ..... 8
7. Gonostylus split at base, subapical and apical lobes of about same length, apical lobe with few short, scattered setae; sternapodeme inverted U-shaped without projections or ridge. South Africa ..... *Elpiscladius* Harrison *et* Cranston
- Gonostylus split in basal one-third, subapical lobe shorter than apical lobe, apical lobe with stout apical lamelliform setae and long, subapical setae; sternapodeme inverted V-shaped, anteriomedian part with wide base tapering to truncated anterior margin. Palaearctic region. .... *Eurycnemus* van der Wulp
8. Apical lobe of gonostylus apically with macroseta or long, lamelliform setae; sternapodeme inverted V-shaped. .... 9
- Apical lobe of gonostylus apically with simple setae or megaseta; sternapodeme inverted U-shaped. .... 10
9. Subapical lobe of gonostylus shorter than apical lobe; apical lobe with apical macroseta; sternapodeme with distinct oral projections and short, narrow transverse sternapodeme. Brazil. .... *Uirassubrillia* **gen. n.**
- Subapical lobe of gonostylus longer than apical lobe; apical lobe apically with long, lamelliform setae; sternapodeme with anteriomedian area triangular or rectangular. Nearctic and Palaearctic regions. .... *Euryhapsis* Oliver
10. Apical lobe of gonostylus with simple setae only; hind tarsomere 1 with sensilla chaetica. Nearctic, Palaearctic and Oriental regions and Oceania ..... *Brillia* Kieffer
- Apical lobe of gonostylus with megaseta; hind tarsomere 1 without sensilla chaetica. Nearctic and Oriental regions. .... *Xylotopus* Oliver

### Key to genera of the *Brillia*-group; female imagines<sup>1</sup>

1. With two seminal capsules ..... 2
- A third thin-walled seminal capsule present ..... 4
2. Hind tibial comb absent, wing cuneiform. .... *Irisobrillia* Oliver
- Hind tibial comb present, wing not cuneiform ..... 3
3. Tergite IX rectangular, undivided; subcosta setose. .... *Brillia* Kieffer
- Tergite IX strongly divided; subcosta with at most a few setae ..... *Neobrillia* Kawai
4. Wing membrane bare ..... 5
- Wing membrane setose ..... 6
5. Antennae with 5 flagellomeres; gonapophysis VIII with line-like dorsomesal lobe and large ventrolateral lobe ..... *Plhudsonia* Sæther
- Antenna with 6 flagellomeres; gonapophysis VIII with strong, dorsomesal lobe and well separated, rectangular ventrolateral lobe ..... *Austrobrillia* Freeman
6. Scutum extending well above antepronotum; hind tibial comb absent ..... *Eurycnemus* van der Wulp
- Scutum moderately or not extending above antepronotum; hind tibial comb present ..... 7
7. Antenna with 6 flagellomeres ..... *Xylotopus* Oliver
- Antenna with 5 flagellomeres ..... 8
8. Fore tibia with spur ..... *Euryhapsis* Oliver



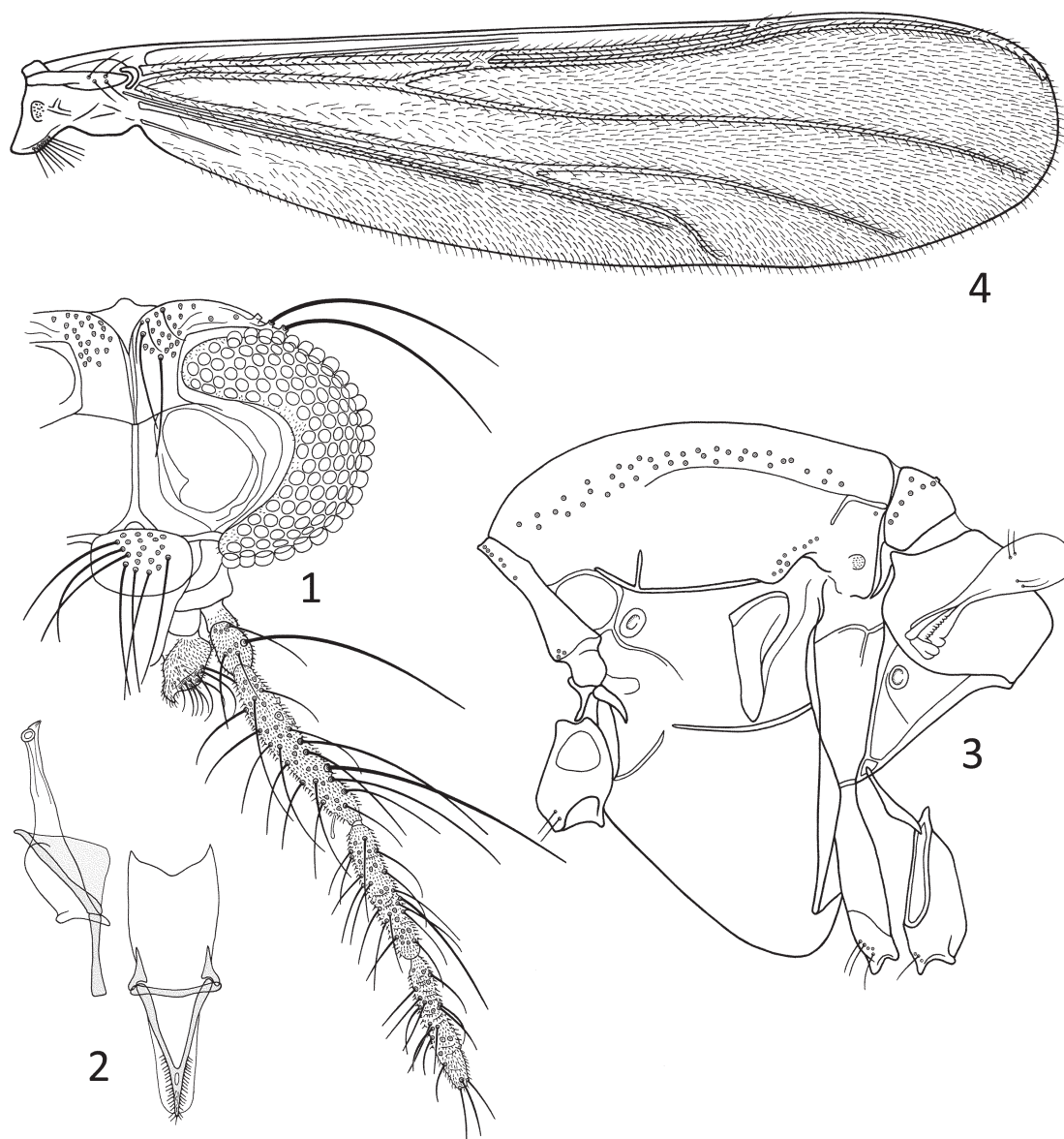
- Fore tibia without spur ..... 9
- 9. Subcosta setose ..... *Tokyobrillia* Kobayashi *et* Sasa
- Subcosta without setae ..... *Uirassubrillia* **gen. n.**

<sup>1</sup>The female of *Elpiscladius* is not known.

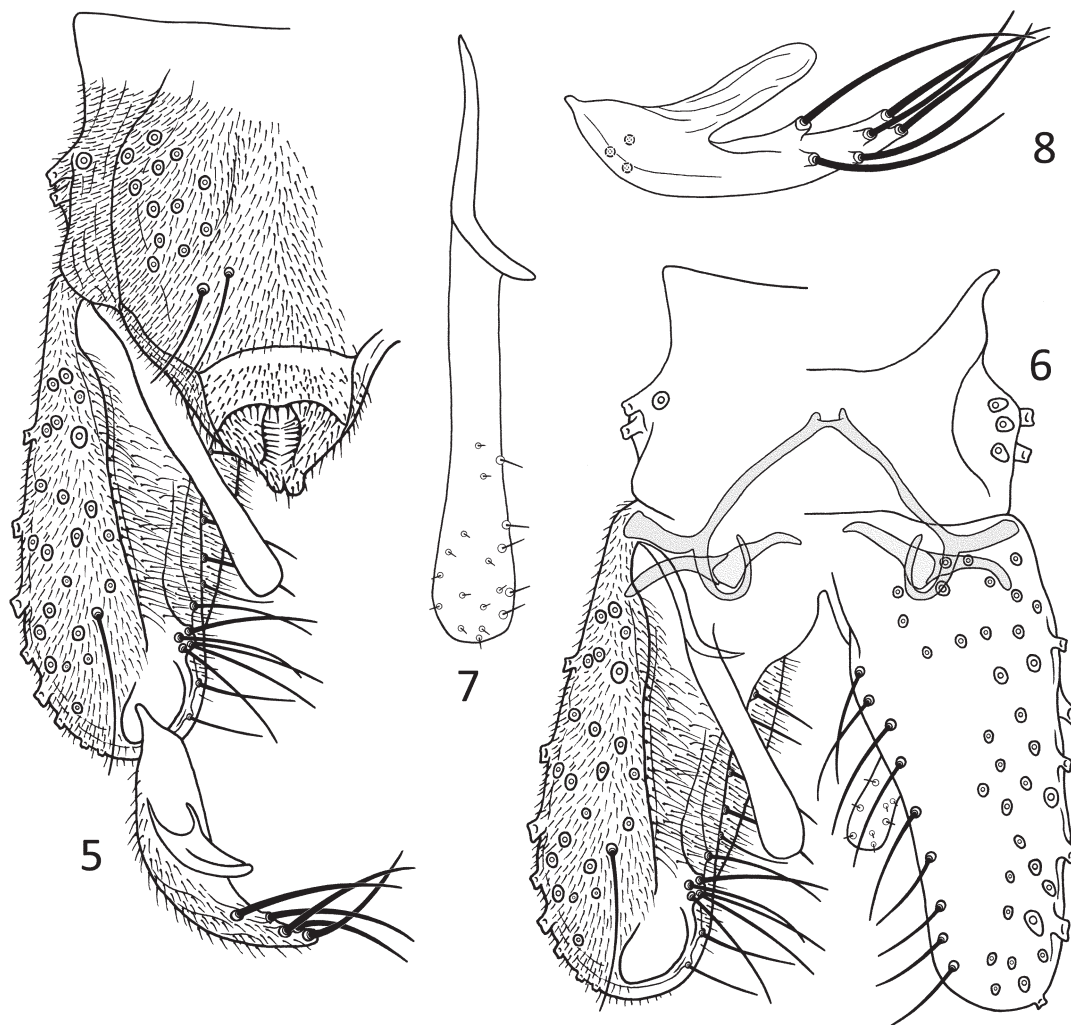
***Uirassubrillia beckeri* sp. n.**

(Figs 1–17)

**Type material.** Holotype male, Brazil: Bahia, Camacan, Reserva Particular de Patrimônio Natural (RPPN) Serra Bonita, Tributary of Panelão River, 15°23'28"S, 39°33'56"W, vii–viii.2009, Malaise trap, A.R. Calor *et al.* (MZUSP). Paratypes: 2 males and 3 females, same data as holotype. 1 female, same as holotype except 01.vii.2008, light trap. 3 males, same as holotype except 15°23'40"S, 39°33'39"W, 01.xi.2009, light trap. 1 male, same as holotype except 15°23'40"S, 39°33'39"W, 03.ii.2009, light trap. 9 males, same as holotype except 15°23'40"S, 39°33'39"W, 03.xi.2009, light trap. 3 males, same as holotype except tributary to Braço do Sul River, 15°23'03"S, 39°34'00"W, xii.2008–i.2009. 1 male and 1 female, same as previous except v–vi.2009 (MZUSP, MZUFBA & ZMBN).



**FIGURES 1–4.** *Uirassubrillia beckeri* **gen. n., sp. n.**, male. 1–head. 2–tentorium, stipes and cibarial pump. 3–thorax. 4–wing.



**FIGURES 5–8.** *Uirassubrillia beckeri* gen. n., sp. n., male. 5–tergite IX and dorsal aspect of left gonocoxite and gonostylus. 6–hypopygium with tergite IX removed, left dorsal aspect, right ventral aspect. 7–superior volsella, ventral. 8–shape of gonostylus.

**Diagnostic characters.** See diagnostic characters for genus.

**Etymology.** The species is named in honor of Dr. Victor Becker for his contribution to the preservation of the Serra Bonita region in southern Bahia and for allowing us to carry out field work within the Instituto Uiraçu dependencies.

**Description. Male** ( $n = 2\text{--}3$ , if not otherwise stated). Total length 3.03–3.54 mm. Wing length 1.51–1.69 mm. Total length / wing length 1.85–2.01. Wing length / length of profemur 1.80–1.88.

**Coloration.** Thorax, abdomen, legs, head and antennae pale brown, coxae and scutellum slightly darker brown; wings translucent.

**Head** (Fig. 1). AR 1.07–1.16. Ultimate flagellomere 424–470  $\mu\text{m}$  long. Temporal setae 28–37; inner and outer verticals not well differentiated in two specimens, a third specimen has only 5–6 temporal setae divided into 3 inner verticals and 2–3 outer verticals. Clypeus with 18–28 setae in two specimens, a third with only 1 seta on clypeus. Tentorium, stipes and cibarial pump as in Figure 2. Tentorium 127–140  $\mu\text{m}$  long, 27–32  $\mu\text{m}$  wide. Stipes 120–129  $\mu\text{m}$  long, 35(1)  $\mu\text{m}$  wide. Palp segment lengths (in  $\mu\text{m}$ ): 32–39, 41–54, 152–192, 129–138, 132–143. Third palpomere with 4–7 scattered sensilla clavata in apical one-third, longest 14–18  $\mu\text{m}$  long. Labrum with 6–8 stout setae in two specimens and a third specimen with 3 stout setae; and 20–23 hair-like setae in two specimens and a third specimen with only 6 hair-like setae.

**Thorax** (Fig. 3). Anteprenotum with 2–9 dorsomedian and 2–4 ventrolateral setae. Dorsocentrals 17–46,

starting close to anteprenotum; prealars 5–12; supraalars 1–2. Scutellum with 11–13 posterior setae in single row and 1–2 anterior setae.

*Wing* (Fig. 4). VR 1.59–1.65. C extension 132–140  $\mu\text{m}$  long. Brachiolum with 4 setae; C extension with about 30–50 non-marginal setae; R with about 40–60;  $R_1$  with about 60–80;  $R_{4+5}$  with about 100–140; RM with 15–17; M with about 15–25;  $M_{1+2}$  with about 130–150;  $M_{3+4}$  with about 70–80; Cu with about 70–110;  $Cu_1$  with about 45–50; Pcu with about 105–120; and An with about 70–90 setae; Sc bare. Wing membrane with 20–25 setae in cell m proximal to RM, other cells extensively setose. Squama with 6–9 setae.

*Legs*. Spur of fore tibia 36–45  $\mu\text{m}$  long; spurs of mid tibia 59–70  $\mu\text{m}$  and 54–64  $\mu\text{m}$  long; spurs of hind tibia 73–79  $\mu\text{m}$  and 47–66  $\mu\text{m}$  long. Width at apex of fore tibia 36–43  $\mu\text{m}$ ; of mid tibia 41–45  $\mu\text{m}$ ; of hind tibia 45–50  $\mu\text{m}$ . Comb composed of 6 thin setae, longest 64–82  $\mu\text{m}$  long, shortest 50–52  $\mu\text{m}$  long. Lengths and proportions of legs as in Table 1.

**TABLE 1.** Lengths (in  $\mu\text{m}$ ) and proportions of legs of *Uirassubrillia beckeri* gen. n., sp. n., male (n = 2–3).

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>
p <sub>1</sub>	838–958	820–939	829–958	387–456	313–332	239–267
p <sub>2</sub>	884–1013	635–718	433–507	184–203	134–163	83–92
p <sub>3</sub>	884–1013	820–912	543–635	276–313	221–249	120–138
	ta <sub>5</sub>	LR	BV	SV	BR	
p <sub>1</sub>	74–92	1.01–1.02	2.46–2.49	1.98–2.00	4.8–5.2	
p <sub>2</sub>	55–64	0.68–0.70	4.28–4.40	3.42–3.57	9.4–9.7	
p <sub>3</sub>	64–74	0.66–0.68	3.28–3.33	3.12–3.17	8.7–9.8	

*Hypopygium* (Figs 5–8). Tergite IX with 18–29 setae in two lateral groups of 7–15 setae; laterosternite IX with 2–5 setae. Phallapodeme 57–61  $\mu\text{m}$  long; transverse sternapodeme 11–16  $\mu\text{m}$  long. Gonocoxite 134–157  $\mu\text{m}$  long. Superior volsella 63–82  $\mu\text{m}$  long; 11–14  $\mu\text{m}$  wide at its widest point. Inferior volsella composed of 4–5 strong setae on low protuberance, longest 32–39  $\mu\text{m}$  long. Gonostylus 77–95  $\mu\text{m}$  long; true megaseta absent, with 5–7 strong setae apically, longest 47–50  $\mu\text{m}$  long, shortest 20–32  $\mu\text{m}$  long; and 3–5 setae basally on ventral side, all fallen off. HR 1.59–1.97. HV 3.62–4.06.

**Female** (n = 2–3, if not otherwise stated). Total length 2.53–3.12 mm. Wing length 1.56–1.69 mm. Total length / wing length 1.63–1.87. Wing length / length of profemur 1.79–1.86.

*Coloration*. Thorax, abdomen, legs, head and antennae pale brown, coxae and scutellum slightly darker brown; wings translucent.

*Head* (Fig. 9). AR 0.33–0.36. Flagellomere length / width (in  $\mu\text{m}$ ): 100–102 / 23–27, 68–70 / 24–27, 69–73 / 23–27, 59–66 / 25, 98–111 / 18–20; pedicel with 6–8 setae ventrally. Temporal setae 26–34; inner and outer verticals not well differentiated. Clypeus with 32–52 setae. Tentorium, stipes and cibarial pump as in Figure 10. Tentorium 107–136  $\mu\text{m}$  long; 20–24  $\mu\text{m}$  wide. Stipes 116–123  $\mu\text{m}$  long; 30(1)  $\mu\text{m}$  wide. Palp segment lengths (in  $\mu\text{m}$ ): 32–36, 41–52, 175–182, 118–138, 136–179. Third palpomere with 6–7 sensilla clavata in apical third, longest 16–18  $\mu\text{m}$  long. Labrum with 5–7 stout setae and 15–19 hair-like setae.

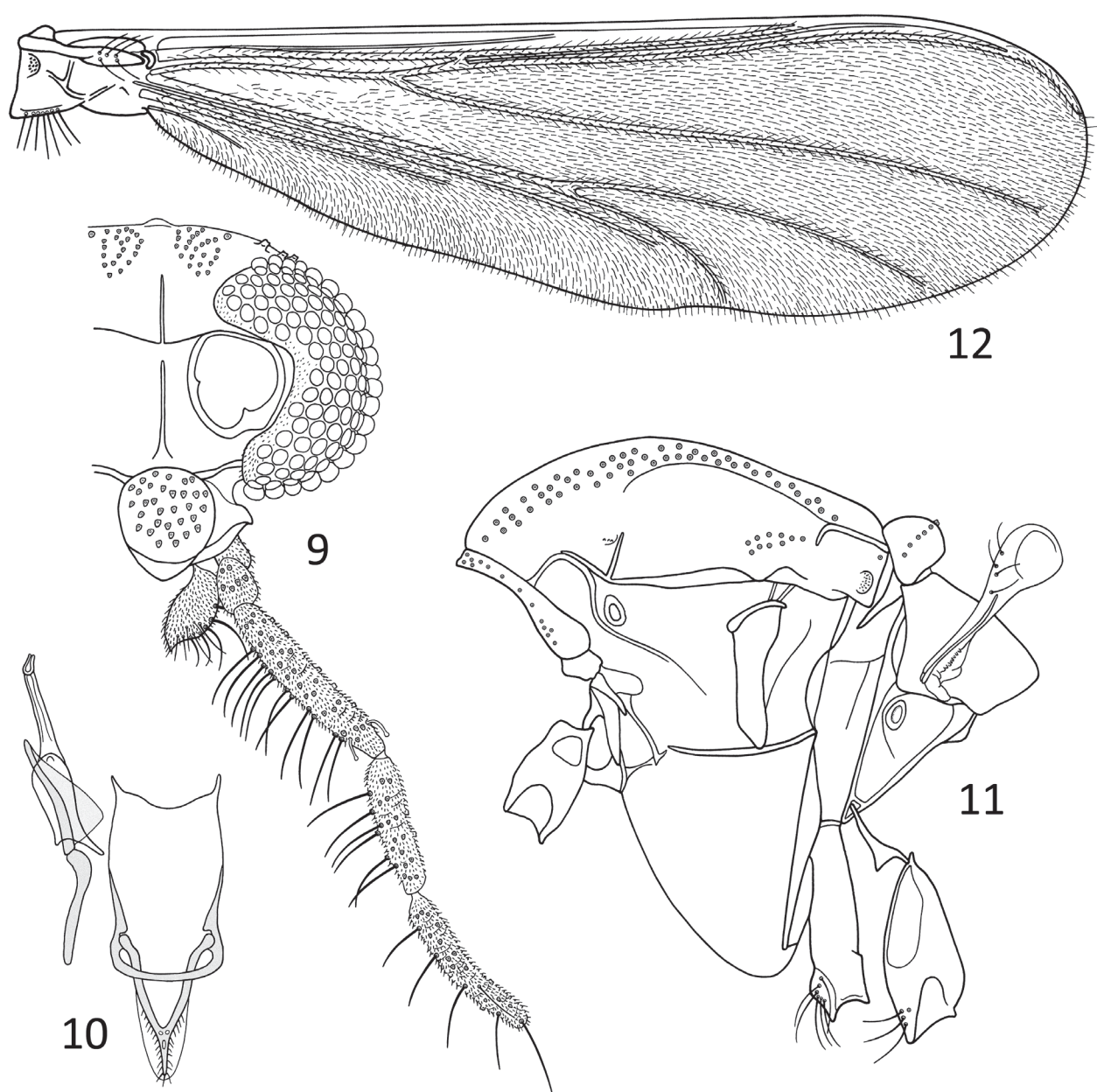
*Thorax* (Fig. 11). Anteprenotum with 6–7 dorsal setae, 3–5 median and 4–5 ventrolateral setae. Dorsocentrals 47–63, starting close to anteprenotum; prealars 10–14; supraalar 1. Scutellum with 12 posterior setae in single row and 0–2 anterior setae.

*Wing* (Fig. 12). VR 1.70–1.85. C extension 141–150  $\mu\text{m}$  long. Brachiolum with 5–8 setae; C extension with about 50–70 non-marginal setae; R with about 40–60;  $R_1$  with about 65–85;  $R_{4+5}$  with about 140–160; RM with 10–17; M with about 20–30;  $M_{1+2}$  with about 150–170;  $M_{3+4}$  with about 90–110; Cu with about 70–100;  $Cu_1$  with about 45–55; Pcu with about 100–150; and An with about 40–70 setae; Sc bare. Wing membrane with 40–90 setae in cell m proximal to RM, other cells extensively setose. Squama with 7–10 setae.

*Legs*. Spur of fore tibia lacking; spurs of mid tibia 57–73  $\mu\text{m}$  and 57–61  $\mu\text{m}$  long; spurs of hind tibia 70–79  $\mu\text{m}$  and 50–59  $\mu\text{m}$  long. Width at apex of fore tibia 36–45  $\mu\text{m}$ ; of mid tibia 41–45  $\mu\text{m}$ ; of hind tibia 43–51  $\mu\text{m}$ . Comb composed of 6 thin setae, longest 73–77  $\mu\text{m}$  long, shortest 45–61  $\mu\text{m}$  long. Lengths and proportions of legs as in Table 2.

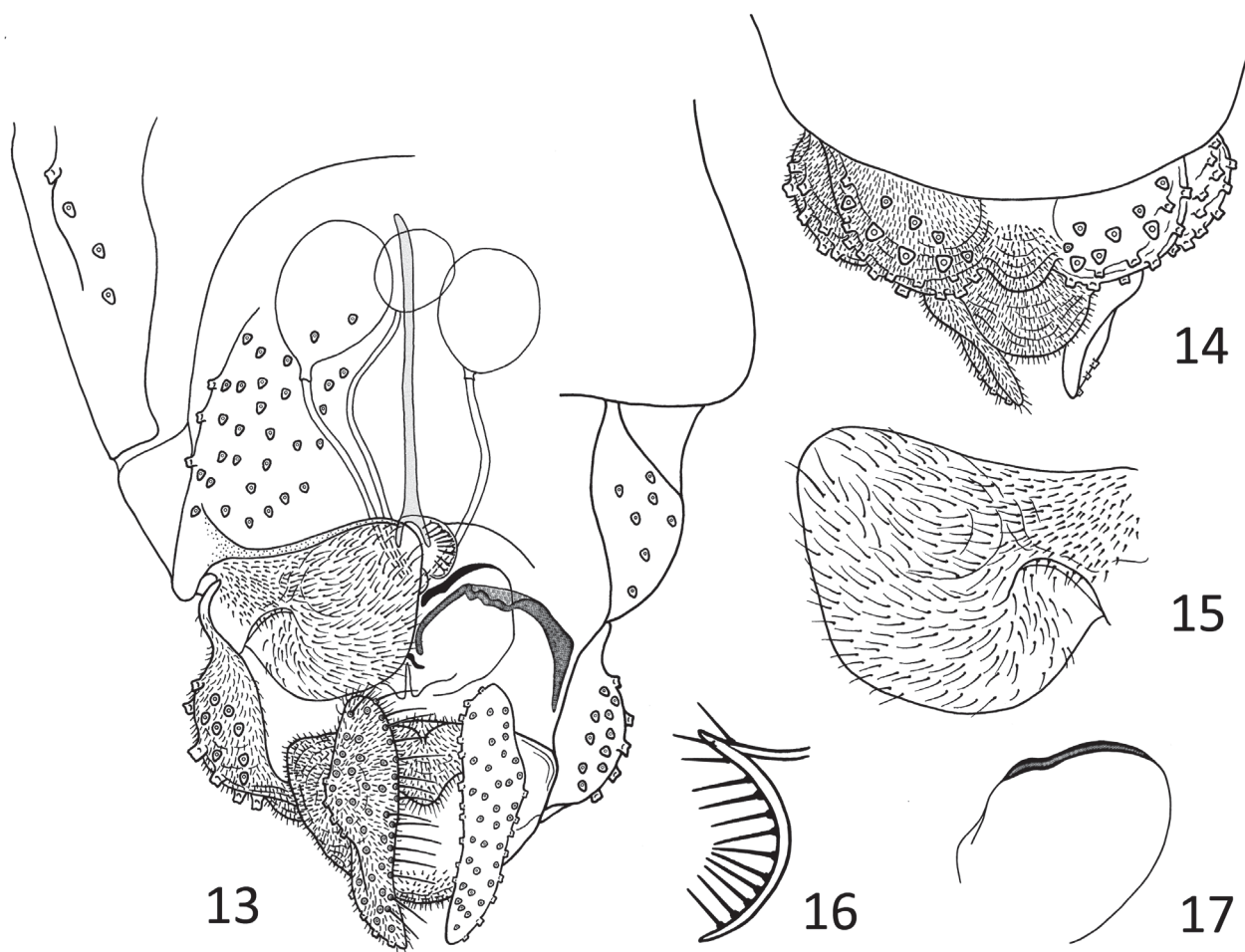
**TABLE 2.** Lengths (in  $\mu\text{m}$ ) and proportions of legs of *Uirassubrillia beckeri* **gen. n., sp. n.**, female ( $n = 2\text{--}3$ ).

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>
p <sub>1</sub>	838–939	801–903	857–958	409–470	313–350	230–276
p <sub>2</sub>	921–995	663–737	442–488	170–184	125–129	74–83
p <sub>3</sub>	939–1013	792–912	530–599	243–286	203–230	101–120
	ta <sub>5</sub>	LR	BV	SV	BR	
p <sub>1</sub>	64–106	1.06–1.09	2.33–2.45	1.86–1.92	5.0	
p <sub>2</sub>	50–55	0.66–0.67	4.53–4.92	3.55–3.58	8.2 (1)	
p <sub>3</sub>	64–70	0.65–0.67	3.47–3.69	3.21–3.27	6.5–8.5	



**FIGURES 9–12.** *Uirassubrillia beckeri* **gen. n., sp. n.**, female. 9–head. 10–tentorium, stipes and cibarial pump. 11–thorax. 12–wing.





**FIGURES 13–17.** *Uirassubrillia beckeri* gen. n., sp. n., female. 13–genitalia, ventral view. 14–tergite IX. 15–ventrolateral lobe. 16–dorsomesal lobe. 17–apodeme lobe.

**Genitalia** (Figs 13–17). Gonocoxapodeme with main branch on dorsomesal lobe, with distinct connection anterior of vagina. Gonocoxite IX with 15–20 strong setae, 59–61  $\mu\text{m}$  long. Tergite IX with 40–53 setae in two distinct groups of 18–33 setae. Cercus 95–109  $\mu\text{m}$  long. Larger seminal capsules round, 48–70  $\mu\text{m}$  long, including 7–10  $\mu\text{m}$  long neck, 3  $\mu\text{m}$  wide at apex; smaller seminal capsule 27–38  $\mu\text{m}$  long. Notum 168–195  $\mu\text{m}$  long. Dorsomesal lobe 14–16  $\mu\text{m}$  long from gonocoxapodeme to apex. Ventrolateral lobe subquadrangular, 57–61  $\mu\text{m}$  long, 54–59  $\mu\text{m}$  wide at its widest point, covered with microtrichia.

**Immature stages.** Unknown.

**Habitat.** The material was collected in Malaise traps along small streams in the Uiraçu Nature Reserve in southern Bahia State. The reserve of about 1800 hectares forms an ecological corridor of primary and secondary forests (30 years or older) of Mata Atlântica varying from 200 to 950 m above sea level. The area is managed by Instituto Uiraçu (<http://www.uiracu.org.br/>) and even though it is privately owned, it is an area of permanent protection.

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## References

- Andersen, T. & Mendes, H.F. (2004) *Irisobrillia longicosta* Oliver, 1985 (Diptera: Chironomidae: Orthocladiinae) taken in south Brazil. *Biota Neotropica*, 4, 1–5.  
<http://dx.doi.org/10.1590/s1676-06032004000200010>
- Ashe, P. & O'Connor, J.P. (2012) *A World Catalogue of Chironomidae (Diptera). Part 2. Orthocladiinae (Section A & Section B)*. Irish Biogeographical Society & National Museum of Ireland, Dublin, 968 pp.
- Cranston, P.S. (2000) *Austrobrillia* Freeman: immature stages, and new species from the Neotropics. *Spixiana*, 23, 101–111.
- Cranston, P.S., Oliver, D.R. & Sæther, O.A. (1989) The adult males of Orthocladiinae (Diptera: Chironomidae) of the Holarctic region – Keys and diagnoses. In: Wiederholm, T. (Ed.), Chironomidae of the Holarctic region. Keys and diagnoses. Part 3 – Adult males. *Entomologica scandinavica*, Supplement 34, 165–352.
- Cranston, P.S., Hardy, N.B. & Morse, G.E. (2012) A dated molecular phylogeny for the Chironomidae (Diptera). *Systematic Entomology*, 37, 172–188.  
<http://dx.doi.org/10.1111/j.1365-3113.2011.00603.x>
- Edwards, F.W. (1931) Chironomidae. In: *Diptera of Patagonia and South Chile*, 2 (5), Trustees of the British Museum, London, pp. 233–331.
- Freeman, P. (1961) The Chironomidae (Diptera) of Australia. *Australian Journal of Zoology*, 9, 611–737.  
<http://dx.doi.org/10.1071/zo9610611>
- Harrison, A.D. & Cranston, P.S. (2007) *Elpiscladius* Harrison and Cranston, a new orthoclad (Diptera: Chironomidae) in the *Brillia*-group from South Africa. *Annals of the Eastern Cape Museums*, 6, 1–11.
- Oliver, D.R. (1985) Review of *Xylotopus* Oliver and description of *Irisobrillia* gen. n. (Diptera: Chironomidae). *Canadian Entomologist*, 117, 1093–1110.  
<http://dx.doi.org/10.4039/ent1171093-9>
- Sæther, O.A. (1969) Some Nearctic Podonominae, Diamesinae, and Orthocladiinae (Diptera: Chironomidae). *Bulletin of the Fisheries Research Board of Canada*, 170, 1–154.
- Sæther, O.A. (1977) Female genitalia in Chironomidae and other Nematocera: morphology, phylogenies, keys. *Bulletin of the Fisheries Research Board of Canada*, 197, 1–209.
- Sæther, O.A. (1979) Hierarchy of the Chironomidae with special emphasis on the female genitalia. *Entomologica scandinavica*, Supplement 10, 17–26.
- Sæther, O.A. (1980) Glossary of chironomid morphology terminology (Diptera: Chironomidae). *Entomologica scandinavica*, Supplement 14, 1–51.
- Sæther, O.A. & Wang, X. (1992) *Euryhopsis fuscipropes* sp. n. from China and *Tokyobrillia anderseni* sp. n. from Tanzania, with a review of genera near *Irisobrillia* Oliver (Diptera: Chironomidae). *Annales de Limnologie*, 28, 209–223.  
<http://dx.doi.org/10.1051/limn/1992018>
- Spies, M. & Reiss, F. (1996) Catalog and bibliography of Neotropical and Mexican Chironomidae (Insecta, Diptera). *Spixiana*, Supplement 22, 61–119.
- Wichard, W., Gröhn, C. & Seredszus, F. (2009) *Aquatic Insects in Baltic Amber / Wasserinsekten im Baltischen Bernstein*. Verlag Kessel, Remagen-Oberwinter, 335 pp.
- Zelentsov, N.I., Baranov, V.A., Perkovsky, E.E. & Shobanov, N.A. (2012) First records of non-biting midges (Diptera: Chironomidae) from the Rovno amber. *Russian Entomological Journal*, 21, 79–87.